

REMARKS

As a preliminary matter, Applicant thanks the Examiner for approving the drawings.
Please find attached formal drawings.

Claims 2-9 are all the claims pending in the application. Claims 3-5 are withdrawn from consideration. Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 2 and 6-9 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Reiter (U.S. Patent No. 6,224,002). Claims 6-9 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Asano.

§ 112, second paragraph, Rejections - Claim 2

The Examiner rejects claim 2 under 35 U.S.C. § 112, second paragraph, for the reasons set forth on page 2 of the Office Action. Applicant amends claim 2, as indicated herein, and submits that this amendment obviates the § 112, second paragraph, rejection of claim 2.

§ 102(e) Rejections (Reiter) - Claims 2 and 6-9

The Examiner rejects claims 2 and 6-9 for essentially the same reasons set forth in the previous Office Action. Also, in the *Response to Arguments* section of the Office Action, the Examiner makes arguments in response to the arguments set forth in the previous Amendment.

With respect to independent claim 2, Applicant amends this claim, as indicated herein, for clarification purposes, and submits that Reiter does not teach or suggest at least “said elastic member extending only in a perpendicular direction away from said sleeve toward said core,” as recited in amended claim 2. That is, the seal ring 35 of Reiter extends in a vertical direction

towards a top portion of the fuel injection valve, but does not extend only in a perpendicular direction away from the sleeve. Further, the alleged sleeve 33 of Reiter is located vertically below the sealing ring 35 of Reiter, which allegedly corresponds to the claimed elastic member, and the tubular core 2 of Reiter is located horizontally adjacent to the alleged sleeve 33, therefore, at least based on this configuration it is clear that the sealing ring 35 of Reiter does not extend only in a perpendicular direction away from the alleged sleeve 33 toward the core, and thus the limitations of claim 2 are not satisfied by Reiter.

Further, with respect to claim 2, the Examiner responds to the argument made in the previous Amendment that Reiter does not teach or suggest at least “a buffer portion damping a change of fuel pressure caused by valve bounce when the needle is closed,” by stating that “the O-ring inherently functions as a buffer portion,” and by alleging that the present specification discloses that the buffer portion is a rubber ring. In response, Applicant submits that even if the sealing ring 35, or O-ring, of Reiter is a rubber ring, it does not necessarily follow that such sealing ring would act as a buffer portion damping a change of fuel pressure caused by valve bounce when the needle is closed, as described in claim 2. That is, as argued in the previous Amendment, the sealing ring 35 of Reiter only performs a sealing function, even if, *assuming arguendo*, it is made of rubber.

With respect to independent claim 6, Applicant maintains that Reiter does not teach or suggest at least “a buffer portion damping a change of fuel pressure caused by valve bounce when the needle is closed,” as similarly argued with respect to claim 2. Further, with respect to claim 6, Applicant maintains that Reiter does not teach or suggest at least “wherein said buffer

portion is located between said sleeve and a core of said fuel injection valve,” as argued in the previous amendment. As explained above with respect to claim 2, the arrangement of the alleged sleeve 33, sealing ring 35, and core 2 of Reiter does not allow the sealing ring (the alleged buffer portion) to be between the sealing ring 35 and core 2, as the alleged sleeve 33 of Reiter is located vertically below the seal ring 35 of Reiter, and the tubular core 2 of Reiter is located horizontally adjacent to the alleged sleeve 33. Therefore, at least based on the foregoing, Applicant submits that independent claim 6 is patentably distinguishable over Reiter.

Applicant maintains that independent claim 7 is patentable for the same reasons set forth above for claim 6. With respect to claims 8 and 9, Applicant maintains that these claims are patentable at least because Reiter does not teach or suggest at least “means for damping a change of fuel pressure caused by valve bounce when the needle is closed,” as similarly argued above with respect to claim 6.

Further, contrary to the Examiner’s assertion, Applicant submits that the members 33, 34 of Reiter are nothing but protruded portions of a support ring, and are not sleeves, as described in claims 2, 6, and 7. Moreover, the members 33, 34 appear to put stress on the elastic member (35) such that that the elastic member’s side face merely faces the fuel path, which results in the elastic member simply being pushed against the member (33), for example, by fuel pressure. Such a configuration of Reiter can not bring the elastic member (35) to effect on the effective damping of the change of fuel pressure occurring at the time when the needle valve is closed.

Therefore, at least based on the foregoing, Applicant submits that claims 2 and 6-9 are each patentably distinguishable over Reiter.

§ 102(b) Rejections (Asano) - Claims 6-9

The Examiner maintains the rejections of claims 6-9 over Asano, as set forth in the previous Office Action. Applicant maintains the same arguments set forth in the previous Amendments of June 13, 2003, January 6, 2003, and July 19, 2002, and submits that claims 6-9 are patentable over Asano at least based on those previously submitted reasons.

That is, with respect to independent claims 6 and 7, Applicant maintains that Asano does not teach or suggest at least “wherein substantially all of said buffer portion contacts fuel in said fuel passage,” as set forth in claims 6 and 7.

Further, with respect to the present invention, as recited in claims 6 and 7, according to Fig. 1 of the present invention, the sealing member is disposed at a lower pressure side with respect to the elastic member (O-ring) and thus the elastic member is placed in such a condition that the fuel pressure is exerted to the elastic member at the peripheral portion of the buffer portion (thus, “substantially all of said buffer portion contacts fuel in said fuel passage”). Thus, for example, a result of the claimed invention is that a damping of the pulsational pressure change can be damped utilizing elastic deformation of the entire surface of the elastic member.

On the other hand, because the structure according to Asano employs the elastic member for sealing, the elastic member of Asano is placed in the condition that it is pushed toward the member (40). Thus, even if, *assuming arguendo*, the elastic member of Asano performs a damping function, only a small part of the surface of the elastic member can be utilized for the purpose of damping of pressure change. That is, because of the smallness of diameter of Asano’s O-ring, it does not practically have an area to be contacted with the fuel and such a

configuration can not bring the O-ring to assume a role of an effective damping responding to the change of the pressure occurring at the close of the needle valve; and as a result a significant pressure difference between upstream side and downstream side of the needle valve can not occur. Thus, according to Asano's constitution, a load for suppressing the bouncing taking place after the collision of the needle valve at its closing can not act on the needle valve, resulting in after dripping of the fuel injection due to the bouncing; and this occurrence results in an adverse effect on the engine combustion.

Therefore, at least based on the foregoing, Asano clearly does not satisfy the limitations of claims 6-7, including at least the claimed limitation "wherein substantially all of said buffer portion contacts fuel in said fuel passage," as recited in claims 6 and 7.

With respect to claims 8 and 9, Applicant maintains the arguments presented in the previous Amendment of July 19, 2002. That is, Applicant submits that Asano does not teach or suggest at least "means for damping a change of fuel pressure caused by valve bounce when the needle is closed, as recited in claims 8 and 9. *See pages 6-7 of July 19 Amendment.*

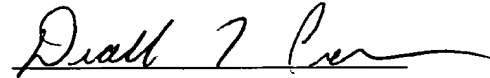
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. APPLN. NO. 09/413,348

ATTORNEY DOCKET NO. Q56091

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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